Before The
FEDERAL COMMUNICATIONS COMMISSION
445 12th Street, S.W., Washington, DC 20554

In the Matter of	)	
The State Of Mobile Wireless Competition	)	WT Docket No. 17-69

COMMENTS OF AT&T INC.

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Pursuant to the Public Notice ("*Notice*") released by the Wireless Telecommunications Bureau ("Bureau") on March 23, 2017,[1] AT&T Inc. ("AT&T") submits the following comments.

INTRODUCTION AND SUMMARY

Today's headlines are filled with stories about the incredible intensity of wireless competition. The Wall Street Journal explains that carriers' recent reintroduction of unlimited data plans has set off a "bruising price war" that "has been a boon to consumers."[2] The New York Times reports that providers "have been poaching customers from each other with lower prices and offers to pay people to switch" in the "competitive wireless marketplace."[3] Fortune Magazine chimes in that this "intensifying competition in the wireless market" was expected to "reduce revenue more than previously anticipated,"[4] which recent earnings reports appear to

[1] Public Notice, *The State Of Mobile Wireless Competition*, WT Docket No. 17-69 (rel. March 23, 2017) ("*Notice*").

[2] Ryan Knutson and Joshua Jamerson, *Verizon Customers Defect As Competition Ramps Up*, The Wall Street Journal (April 21, 2017), https://www.wsj.com/articles/verizon-for-first-time-loses-core-wireless-customers-1492691308 ("*Verizon Customers Defect*").

[3] The Associated Press, *Amid Competition, Verizon Loses Key Customers for the First Time*, New York Times (April 20, 2017), https://www.nytimes.com/aponline/2017/04/20/business/ap-us-earns-verizon-communications.html?_r=0.

[4] Aaron Pressman, *How Wireless Competition Is Finally Catching Up to Verizon*, Fortune (Jan. 24, 2017), http://fortune.com/2017/01/24/verizon-revenue-wireless-competition.

confirm.[5] CNET describes the past year as "one of the most competitive stretches in the wireless businesses, as the carriers step over each other to win your business."[6]

The Commission should now affirmatively acknowledge what is obvious to everyone else: the wireless marketplace is "effectively competitive." Section 332(c)(1)(C) of the Communications Act requires the Commission to provide Congress an annual analysis of "whether or not there is effective competition" in the wireless marketplace.[7] Historically, the Commission always answered this question in the affirmative, relying on a wealth of data and a well-established economic framework for analysis. In recent years, however, the Commission stopped answering the statutory question. Although it still issued lengthy reports containing mountains of data confirming that the wireless marketplace was effectively competitive and steadily becoming even *more* competitive, the Commission de-emphasized this direct evidence and instead relied on contrived and artificial measures of indirect evidence, such as "concentration" and profits, that led it to disclaim the ability to certify that the wireless marketplace was effectively competitive.

The Commission should correct this error in the next Wireless Competition Report and return its focus to accepted microeconomic analyses. Prior to its recent departure from these principles, the Commission had developed a sound analytical economic framework that conducts a holistic, data-driven, and market-specific inquiry into market structure, market performance, provider conduct, and consumer conduct. Any reasonable application of that framework would result in a finding of "effective competition," because the data overwhelmingly confirm that

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[5] *See Verizon Customers Defect*.

[6] Roger Cheng, *T-Mobile's all-in bet on unlimited pays off*, CNET (April 24, 2017), https://www.cnet.com/news/t-mobile-first-quarter-earnings-rises-as-subscriber-grows-on-unlimited-plans.

[7] *See* 47 U.S.C. § 332(c)(1)(C).

fierce competition is producing the desired "effects" for consumers: decreasing prices, increasing output, rampant innovation, and massive investment in improving the speed and quality of wireless networks.

In applying its longstanding analytical framework, the Commission should restore its focus on the most economically salient factors in its four-part analysis, in two key respects. First, the Commission should return to its historical understanding that "market structure" is just the beginning of the analysis. The true significance of this factor is that the structure of today's wireless marketplace essentially guarantees robust competition: four carriers have made enormous investments to build out nationwide, high-speed wireless networks, and they have no choice but to compete fiercely for customers to recover those investments, even as regional and reseller competitors continuously enter the marketplace and provide added competition in particular locales. Indeed, as explained below, recent economic research shows that, in a marketplace like wireless, in which services are necessarily delivered over a fixed and limited resource like spectrum, the current market structure likely provides the optimal level of competitive benefits for consumers.[8]

Second, the Commission should reaffirm that the structural characteristics of markets "are desirable not as ends in themselves, but rather as a means of bringing tangible benefits to consumers such as lower prices, higher quality and greater choice of services," and thus it is these "consumer outcomes [that] are the ultimate test of effective competition."[9] In other words,

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[8] *See* T. Randolph Beard, George S. Ford, Lawrence J. Spiwak, Michael Stern, *A Policy Framework for Spectrum Allocation in Mobile Communications,* 63 Fed. Comm. L.J. 639 (2011) ("*A Policy Framework*").

[9] Thirteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services,* WT Docket No. 08-27, ¶ 187 (rel. Jan. 16, 2009) ("*Thirteenth Report*").

the "ultimate" test of competition comes from the aspect of the analysis the Commission has termed "market performance" (*e.g.*, prices, output, *etc*.), supplemented by provider and consumer behavior. Artificial measures of "concentration," such as the Herfindahl-Hirschman Index ("HHI"), are inherently predictive measures that provide almost no direct evidence about the competitiveness of a market, particularly one that (like wireless) has high fixed costs. There is no need to rely blindly on such predictive measures when the Commission has extensive *direct* evidence of competitive outcomes, and the Commission's recent efforts to treat those indirect measures as offsetting direct evidence of competition were contrary to both the facts and economic theory.

Indeed, the Commission recently reached the same conclusion in the business data services ("BDS") proceeding.[10] The Commission explained that "concentration measures alone are largely poor indicators of whether market conditions exist that will constrain business data services prices, and overstate the competitive effects of competition"[11] and that "the characteristics" of the industry demonstrated one competitor "with high sunk investments in [competing] network facilities" was sufficient to ensure competitive outcomes.[12] The simple presence of "concentrated supplies" in a particular area were deemed to be "not reliable indicators of whether business data services pricing decisions are made competitively."[13] The wireless market—similar to the BDS market—has high sunk investment costs and has an even wider range of competitors in the vast majority of geographic markets. Therefore, as with the BDS market, there is no economically rational basis to rely blindly on predictive measures of

[10] *See Business Data Services in an Internet Protocol Environment*, WC Docket No. 16-143 (rel. April 28, 2017).

[11] *Id.* ¶ 66.

[12] *Id.* at n.209.

[13] *Id.* ¶ 67.

wireless competition when the Commission has extensive *direct* evidence of competitive outcomes.

The *direct* evidence here overwhelmingly confirms that competition is already strong and "effective," and that it has accelerated even since the facts and data collected in the *Nineteenth Report*.[14] The intense competition surrounding unlimited plans in 2016 vividly illustrates this point. In January 2016, AT&T introduced a new unlimited wireless plan for customers who also subscribed to AT&T's DIRECTV service. T-Mobile and Sprint responded with new unlimited plans of their own that undercut AT&T's pricing, with T-Mobile offering unlimited data for $70 per month for the first line and Sprint offering $60 per month for the first line. AT&T responded by replacing its original $100 unlimited plan with two new unlimited plans priced at $55 and $90 (depending on the value-added features included), and made those plans available to all customers (not just DIRECTV customers). Verizon also buckled under the competitive pressure and introduced a new unlimited plan for $80 per month for the first line.

The consumer benefits from this and other competitive moves have been dramatic. The Wall Street Journal reported late last month that this competition has benefited consumers and contributed to "March's surprising 0.3% drop in consumer-price index."[15] Overall, "[p]rices for wireless services fell 11.4% in March from a year earlier…"[16] Verizon experienced significant losses: "[d]uring the first three months of this year, the company posted its first-ever quarterly net loss of wireless subscribers, showing the damage resurgent rivals . . . have inflicted on the

[14] Nineteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 16-137 (rel. Sept. 23, 2016) ("*Nineteenth Report*").

[15] *Verizon Customers Defect.*

[16] *Id.*

nation's largest carrier."[17] Verizon is therefore "having to slash prices and offer more data to stem [this] unprecedented wave of customer losses, a maneuver that benefits customers but hurts its bottom line."[18] Facts such as these should make plain that no provider in this marketplace comes close to having "market power" – *i.e.*, the ability to sustain restrictions in output and increases in price.

Indeed, prices have continued to decline as output has risen. As the Commission noted in the *Nineteenth Report*, the "Wireless Telephone Service CPI" decreased by 3.8 percent from 2014 to 2015 even though the nation's overall CPI increased modestly over the same period. And that trend has continued. The Bureau of Labor Statistics' report for March 2017 shows that Wireless CPI decreased by 7.0 percent, "the largest 1-month decline in the history of the index."[19] UBS's most recent report similarly finds that the average customer bill, measured by average revenue per unit ("ARPU"), fell by an average of 5.1 percent between the fourth quarter of 2015 and the fourth quarter of 2016.[20] And these declines are on top of the historical trend of decreasing prices. CTIA's 2015 survey found that ARPU declined for the four nationwide providers and U.S. Cellular in 2015, and that the average customer's bill in 2015 was lower than at any time since CTIA began tracking such data in 1993.[21]

Even as prices fall, customers are using more data, minutes, and texts, and they are experiencing faster speeds and are given more features (*e.g.*, video services at no additional

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[17] *Id.*

[18] *Id.*

[19] *See* Bureau of Labor Statistics, *CPI Detailed Report, Data for March 2017* at 2, https://www.bls.gov/cpi/cpi_dr.htm#2017.

[20] UBS Securities LLC, Wireless 411: A difficult market asking for repair, 15, Fig. 29 (Feb. 22, 2017) ("UBS Wireless 411 Report").

[21] *See* CTIA, Wireless Industry Indices Report at 86 (July 2016) ("Wireless Industry Indices Report").

charge). Indeed, the average smartphone user in North America increased data usage by 40 percent in 2016.[22] The average adult is expected to spend 2 hours and 25 minutes per day using mobile apps in 2017, a 10.3% increase over the year before.[23] Overall data usage in North America increased by 44 percent in 2016, according to Cisco's latest estimate, and North America continues to lead the world in terms of available mobile broadband speeds.[24] And, as discussed below, the latest survey data from CTIA shows continued dramatic increases in the number of mobile wireless connections, minutes of use, and number of MMS messages.

Congress has asked the Commission if there is "effective competition" for wireless services. Three years ago, then-Commissioner Pai said the answer was "pretty obvious": "[y]es."[25] Just recently, now-Chairman Pai reiterated that the current wireless market is "highly competitive" and that the situation "is great for consumers."[26] For the first time in eight years, the Commission should issue a report that unambiguously gives that obvious answer.

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[22] *See* Ericsson, *Ericsson Mobility Report* at 12 (November 2016), https://www.ericsson.com/assets/local/mobility-report/documents/2016/ericsson-mobility-report-november-2016.pdf ("Ericsson Mobility Report").

[23] *See* eMarketer, *eMarketer Unveils New Estimates for Mobile App Usage* (Apr. 11, 2017), https://www.emarketer.com/Article/eMarketer-Unveils-New-Estimates-Mobile-App-Usage/1015611.

[24] *See* Cisco, *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2016–2021*, White Paper (March 2017), http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.pdf.

[25] Sixteenth Report, Statement of Commissioner Pai at 2, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 11-186 (rel. Mar. 21, 2013) ("*Sixteenth Report")*; *see also id.* at 1 ("the Communications Act does not give us the discretion to dodge" the question asked by Congress, and "[t]he binary choice of yes or no doesn't countenance a hedge. . . .").

[26] Ted Johnson, *FCC Chairman Ajit Pai Interview: Media Ownership Rules 'Quite Antiquated,'* Variety (March 14, 2017), http://variety.com/2017/biz/news/fcc-ajit-pai-media-ownership-1202008630/.

I. THE COMMISSION SHOULD REFOCUS ITS "EFFECTIVE COMPETITION" INQUIRY ON THE ECONOMICALLY SALIENT FACTORS.

Section 332(c)(1)(C) of the Act requires the Commission to determine whether there is "effective competition" for wireless services. The statute does not define "effective competition" for these purposes, but the Commission traditionally has relied on fundamental principles of microeconomic theory and assessed competition based on well-established economic indicators. Over the years, the Commission settled on a framework in which it organized its assessment of such economic indicators into four broad categories: market structure, market performance, provider conduct, and consumer behavior. For many years, the Commission conducted a holistic review that, within this framework, gave proper emphasis to *direct* evidence that wireless competition was benefiting consumers, such as decreases in prices, increases in output, and advances in innovation. Emphasizing such direct evidence of competitive outcomes was appropriate, because this "framework proceeds from the premise that indicators of market structure such as the number of competitors and their market shares are not, by themselves, a sufficient basis for determining whether there is effective competition."[27] Instead, the assessment should focus on both the "structural and behavioral characteristics of the [Commercial Mobile Radio Service ("]CMRS["")] marketplace."[28] Under this framework, the Commission consistently concluded year-after-year that there was "effective competition" for wireless services.

In recent years, however, the Commission's reports have refused to make a finding of "effective competition" one way or the other. Although the market for wireless services has in fact become even more competitive – and the reports have continued to include multitudes of

[27] *See Thirteenth Report* ¶ 5.

[28] *Id.*

evidence confirming that fact – the Commission has nonetheless emphasized factors such as "concentration" and profits in declining to make no finding at all. Indeed, not only have recent reports embraced the "naive notion that high concentration *a fortiori* equals market power in communications markets,"[29] the Commission has exacerbated those errors by using contrived and artificial measures of concentration that have no practical or economic meaning.

The Commission should retain its longstanding, four-part inquiry, and it should restore its historical approach by giving the proper emphasis to the factors that economic theory and standard antitrust practice deem most salient. To that end, the Commission should recognize that not all factors in its historic framework have the same importance or probative value. In particular, the Commission's inquiry should not favor *indirect* and inherently predictive measures like concentration over *direct* evidence of robust competition, such as declining prices, increasing output, increased choices, expanded offerings, technological innovation, and service quality improvements. Accordingly, the Commission should re-establish both (1) the proper role of market structure and concentration considerations in this inquiry, and (2) the relative primacy of direct measures of market performance and competition over market structure and concentration measures.

Proper Role and Interpretation of Concentration Measures. The Commission should reaffirm that measures of concentration are merely the starting point for analysis and that such measures in fact have no necessary or direct relationship to the existence of effective competition. Federal Trade Commission ("FTC") and Department of Justice ("DOJ") economists have both strongly criticized attempts to "link[] increases in concentration to declines in market performance," explaining that "[i]n recent decades . . . industrial organization scholars

[29] T. Randolph Beard, George S. Ford, Lawrence J. Spiwak, Michael Stern, *Wireless Competition Under Spectrum Exhaustion*, 65 Fed. Comm. L.J. 79, 86 (2013).

and the courts have been more apt to stress that high concentration can be compatible with vigorous competition and efficient market performance."[30] For purposes of the Commission's analysis of wireless services, the salient point with respect to "market structure" is the fact that, as explained more fully below, the structure of the U.S. wireless marketplace effectively guarantees intense competition. This is because (i) the Commission has provided enough spectrum to support multiple carriers throughout the nation; (ii) numerous carriers have made enormous investments to build out high-speed wireless networks; and (iii) to recover those investments carriers have no choice but to compete fiercely to attract and retain customers.

By contrast, static measures of concentration, such as the HHI, are often relatively high in markets that, like wireless, are characterized by high sunk costs and large economies of scale and scope.[31] The mere fact that such measures are relatively high, standing alone, does not preclude a funding that a marketplace is competitive.[32] "As consistently demonstrated by academic research, given the huge fixed and sunk costs inherent to the construction and commercial operation of communications networks, the equilibrium level of concentration of terrestrial firms

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[30] Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition* at 4 (University of California at Berkeley Competition Policy Center, Working Paper, Nov. 25, 2008).

[31] *See* Declaration of Michael Katz ¶¶ 21-23, 30, attached to Reply Comments of AT&T Inc., *Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition*, WT Docket No. 09-66 (filed July 12, 2009) ("*Katz Decl.*").

[32] In its most recent reports, the Commission has used a special "weighted average" of the HHI. *See, e.g., Nineteenth Report* ¶ 33. HHIs are intended to be used only in merger proceedings, and even then, the HHI is merely an initial screen, to determine whether it would be useful to take a closer look at the actual marketplace facts. As AT&T has previously explained, the Commission's "weighted average" provides an especially misleading picture of concentration, allowing rural HHIs to dominate the average and masking the fact that the overall national HHI is far lower and that most Americans live in areas with much lower HHIs. *See* Comments of AT&T, *The State of Mobile Wireless Competition*, WT Docket No. 10-133, at 16, at 16-23 (filed July 30, 2010).

in the local communications markets (voice, video, and data) will be relatively high."[33] When the Commission has previously reported CMRS HHIs, it has cautioned that, where "the scale [or] output at which a firm can fully exploit scale economies (the minimum efficient scale) is large relative to potential demand, there will be room in the market for only a small number of firms operating at the lowest possible cost" and, as a result, "market concentration in such industries will tend to be high relative to industries characterized by greater potential demand or smaller minimum efficient scale."[34]

Recent economic analyses of the wireless marketplace provide even more support for the efficacy of the current market structure. As the authors of one recent paper explain, in a marketplace where a key input is limited – as is the case with spectrum in the wireless industry – there is an important trade-off in terms of the number of competitors and quality of service that can be provided.[35] With many providers, intense price competition will certainly exist, but each

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[33] George Ford, Thomas M. Koutsky, Lawrence J. Spiwak, *Competition after unbundling: entry industry structure, and convergence*, 59 Fed. Comm. L.J. 331, 332 (2007).

[34] Ninth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993. See also Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 04-111, ¶ 55 (rel. Sept. 28, 2004); *see also* Tenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 05-71, ¶ 47 (rel. Sept. 30, 2005); Eleventh Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 06-17, ¶ 46 (rel. Sept. 29, 2006); Twelfth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 07-71, ¶ 53 (rel. Feb. 4, 2008); *Thirteenth Report* ¶ 48. Even when reviewing wireless mergers, the Commission employs a "screen" under which it has determined that where the merger will result in an HHI below 2800 and will not increase the HHI by more than 250, "there is clearly no competitive harm in today's generally competitive marketplace." Memorandum Opinion & Order, *Applications of Wireless Telecommunications, Inc., Debtor-In-Possession, Assignor and The Vermont Telephone Company, Inc., Assignee*, 24 FCC Rcd. 3177, ¶ 15 (2009).

[35] *See A Policy Framework*.

provider would have less spectrum to work with, and thus would have limited ability to offer customers higher speeds and other valuable features. With fewer competitors, price competition may be reduced, but consumers may benefit from higher speeds and other valuable features that are possible when each provider has more spectrum. The goal therefore is to find the happy medium where there are a sufficient number of providers to ensure robust price competition, but not so many that they are too spectrum-constrained to offer the speeds and other features that state-of-the-art networks can provide.[36] For this reason, a regulatory bias in favor of promoting many competitors is sound, but "economic theory also has established that the social benefits of entry . . . can diminish fairly rapidly as more firms enter."[37]

This recent economic analysis shows, using standard Bertrand and Cournot models, that the U.S. wireless marketplace has essentially achieved that happy medium. The Bertrand model, which assumes that all firms and products are identical, shows that entry of a second competitor drives prices to marginal costs, thus converting the market from a monopoly to perfectly competitive.[38] The Cournot model, which can reflect the more realistic intermediate case in which offerings can vary, shows that price levels quickly approach those that would occur in a perfectly competitive marketplace with four providers.[39]

The analysis confirms that market forces have already driven the U.S. wireless marketplace close to an optimal equilibrium. The U.S. marketplace today has four nationwide competitors, with additional smaller regional and Mobile Virtual Network Operator ("MVNO") competitors in most areas. These economic models thus support a finding that the current U.S.

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[36] *Id.*

[37] *Id.* at 653.

[38] *Id.* at 653-54 & Fig. 1.

[39] *Id*.

market has enough large and independent providers to gain the full benefits of both price and non-price competition within the spectrum and other constraints of the wireless industry.

Primacy of Direct Measures. As the Commission has previously emphasized, the structural characteristics of marketplaces "are desirable not as ends in themselves, but rather as a means of bringing tangible benefits to consumers such as lower prices, higher quality and greater choice of services," and these "consumer outcomes are the ultimate test of effective competition."[40] That is why the Commission has never been satisfied with looking solely at the number of competitors and their market shares in conducting these inquiries. Concentration metrics are meaningless by themselves,[41] and it has been "many years since anyone knowledgeable about" competitive analysis "thought that concentration by itself imported a diminution in competition."[42]

Indeed, as several prominent economists have recently explained, "[e]conomists generally believe that competitive analysis should be about satisfying customers. If firms exercise market power, customers may suffer through higher prices, reduced quality, and foreclosed entry of new competitors."[43] Notwithstanding this focus on consumers, economists

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[40] *Thirteenth Report* ¶ 187.

[41] *See, e.g., Katz Decl.*, ¶¶ 16, 23 ("measures of concentration suffer from several drawbacks that limit their usefulness or invalidate them as stand-alone indicators," and "it would be a mistake to simply assume that the market in question is not effectively competitive" merely based on such indicators); *see also* Fourteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 09-66, ¶ 48 (rel. May 20, 2010) ("*Fourteenth Report*") (pointing out that HHI measures are useful only when "evaluated together with firm conduct and actual industry performance").

[42] *Capital Cities/ABC, Inc.* v. *FCC*, 29 F.3d 309, 315 (7th Cir. 1994); *U.S.* v. *Syufy Enters.*, 903 F.2d 659, 665-66 (9th Cir. 1990) ("In evaluating monopoly power, it is not market share that counts but, the ability to *maintain* market share.") (emphasis in original).

[43] Gerald R. Faulhaber, Robert W. Hahn, Hal J. Singer, *Assessing Competition in U.S. Wireless Markets: Review of the FCC's Wireless Competition Reports*, 64 Fed. Comm. L.J. 319, 322

traditionally "did not have the tools to adequately measure [the] effect [on consumers]," and thus "they relied on indirect measures, such as market share in the relevant markets, the HHI, and market definitions."[44] As the economists note, "[t]he approach to market analysis changed substantially with the landmark Staples-Office Depot proposed merger," in which the FTC "employed a new standard of direct evidence."[45] To determine whether a firm exercises monopoly power, the question became: "Does the firm in question behave like a monopolist?" The economists note that "[t]his direct approach has been widely embraced by academic economists, and in 2010, the federal antitrust agencies revised the Horizontal Merger Guidelines to reflect this new thinking in competition analysis."[46]

Simply put, the Commission should not guess at the state of competition by focusing solely on indirect measures like market concentration, when an abundance of more direct measures are available. Courts and economists agree that market power is the ability to restrict output and increase prices on a sustained basis.[47] If the Commission has *direct* evidence that providers lack this ability, and indeed that providers are consistently *increasing* output and *lowering* prices, it would fly in the face of accepted economics to decline to find "effective competition" on the basis of putative concerns about "concentration."

(2012) ("*Assessing Competition*").

[44] *Id.*

[45] *Id.*.

[46] *Id.* at 323 (citing Aaron S. Edlin & Daniel L. Rubinfeld, *Exclusion or Efficient Pricing? The "Big Deal" Bundling of Academic Journals*, 72 Antitrust L.J. 119, 141 (2004), and U.S. Dep't of Just. and the Fed. Trade Comm'n, Horizontal Merger Guidelines (Aug. 2010)).

[47] *See United States* v. *Western Elec. Co.*, 969 F.2d 1231 (D.C. Cir. 1992); *Assessing Competition* at 328 ("[e]conomists typically agree that market power should be defined as (1) the ability to set prices above competitive levels and (2) the ability to exclude rivals") (citing Aaron S. Edlin & Daniel L. Rubinfeld, *Exclusion or Efficient Pricing? The "Big Deal" Bundling of Academic Journals*, 72 Antitrust L.J. 119, 141 (2004)).

II. MARKET STRUCTURE, MARKET PERFORMANCE, AND PROVIDER AND CONSUMER CONDUCT ALL CONFIRM THAT THE WIRELESS MARKETPLACE IS EFFECTIVELY COMPETITIVE.

As demonstrated below, a proper analyses of the wireless market structure confirms that it is highly conducive to competition. Skyrocketing output, lower prices, investment, innovation, customer switching, and other direct evidence confirm that the wireless marketplace is not only effectively competitive, but robustly competitive.

A. The Structure of the Wireless Marketplaces Ensures Effective Competition.

The structure of the wireless marketplace all but guarantees robust competition. Today, there are four strong national facilities-based providers: AT&T, Sprint, T-Mobile, and Verizon Wireless.[48] In addition, there are dozens of regional and local facilities-based providers, including U.S. Cellular, C Spire, Alaska Wireless, Bluegrass Cellular, Carolina West Wireless, Cellcom, Choice Wireless, Nex-Tech Wireless, Pioneer, and Sagebrush Cellular.[49] These providers have all made enormous investments in spectrum, cell sites, back haul, and other facilities, and thus must sign up customers to fill their networks to maximize their returns on those investments.[50]

These providers thus have no choice but to compete. The most recent available

[48] *See Nineteenth Report* ¶ 7.

[49] *Id.* ¶ 8 & n.23 (also noting that U.S. Cellular, the fifth largest service provider, "is best characterized as multi-regional, and has developed wireless networks and customer service operations in portions of 23 states"). U.S. Cellular added 170,000 subscribers in 2016. *See* TDS Telecom, *Fourth Quarter 2016 Results, 2016 Accomplishments, 2017 Strategic Priorities and Guidance* at 12, http://s1.q4cdn.com/183458318/files/doc_presentations/2016/TDS-USC-Q4-2016-operating-results-final.pdf.

[50] *See, e.g.*, FCC, *FCC Incentive Auction – Forward Auction, Auction 1002 Bidder Summary*, http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0413/DA-17-314A3.pdf ($910 million spectrum by AT&T; $3 million spectrum investment by Bluegrass; $13.5 million spectrum investment by Pioneer; $1.5 million spectrum investment by Sagebrush Cellular; $8 billion spectrum investment by T-Mobile; $328 million spectrum investment by US Cellular); Wireless Industry Indices Report at 72.

Commission data (year-end 2015) shows that more than 93 percent of Americans could choose among at least *four* of these facilities-based providers.[51] Equally important, Americans have more choices than ever for wireless *broadband* services. The latest Commission data (year-end 2015) show that 95.9 percent of Americans could choose among at least *three* mobile broadband providers, and nearly 90 percent could choose among at least four of them.[52] And these percentages are all higher today because providers have continued to expand the coverage of their networks over the past year.[53]

The structure of the wireless marketplace is also conducive to other sources of

[51] *See Nineteenth Report* ¶ 37.

[52] *Id.* ¶ 39, Chart III.A.2. This is an increase from the Commission's prior report, which found that 91.5 percent of the U.S. population could choose among at least three mobile broadband providers, and 82.2 percent could choose among at least four mobile broadband providers. *See* Eighteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 15-125, ¶ 39, Chart III.A.3 (rel. Dec. 23, 2015)..

[53] *See, e.g., AT&T Invests Nearly $700 Million Over 3-Year Period to Enhance Local Networks in San Diego Area*, Yahoo! Finance (May 2, 2017), https://finance.yahoo.com/news/t-invests-nearly-700-million-160000304.html; *AT&T Invests More Than $2.8 Billion Over 3-Year Period to Enhance Local Networks in Florida*, Yahoo! Finance (May 4, 2017), https://finance.yahoo.com/news/t-invests-more-2-8-131500728.html; Dan Meyer, *Verizon testing 5G in 10 locations, could expand beyond fiber footprint*, RCR Wireless News (Jan. 24, 2017), http://www.rcrwireless.com/20170124/carriers/verizon-testing-5g-in-10-locations-could-expand-beyond-fiber-footprint-tag2 (Verizon has launched 5G with "'commercial-scale' pilots' in about 10 different locations across the country."); Antonio Villas-Boas, *Here are the carriers with the best wireless coverage*, Business Insider (Feb. 2, 2016), http://www.businessinsider.com/t-mobile-catching-up-to-att-verizon-2016-2 ("T-Mobile is rapidly expanding its LTE network."); Dan Meyer, *Sprint LTE Plus network takes on New York City, 190 other markets*, RCR Wireless News (April 15, 2016), http://www.rcrwireless.com/20160415/carriers/sprint-lte-plus-network-takes-on-new-york-city-190-markets-tag2; Zacks Equity Research, *US Cellular (USM) Poised for Long-Term Growth, Risks Stay*, Nasdaq (May 11, 2016), http://www.nasdaq.com/article/us-cellular-usm-poised-for-long-term-growth-risks-stay-cm619686 ("[W]e expect U.S. Cellular to benefit from its LTE expansion.."); Market Peters, *C Spire 4G LTE network expansion project*, LetsGoDigital (April 8, 2017), http://www.letsgodigital.org/en/43713/4g-lte-high-speed-mobile-internet/ ("C Spire, whose wireless unit is one of the nation's leading mobile service providers, announced today that it has expanded coverage for much of its 4G LTE network as it nears completion of the latest phase of its new cutting-edge, maximum range low-band spectrum technology initiative.").

competition. For example, there are [dozens] of non-facilities-based MVNOs that compete in the wireless marketplace using wireless capacity purchased from facilities-based providers.[54] MVNOs typically offer a combination of price, quality, and services to entice particular types of customers to choose them over their facilities-based counterparts. And MVNOs have had enormous success.[55] Indeed, TracFone, the largest MVNO, is the fifth largest wireless provider by subscriber count in the nation, beating out several facilities-based providers.[56]

In additional to traditional MVNOs, large companies, including Google and Comcast, have begun deploying mobile wireless service using a combination of mobile wireless capacity purchased from facilities-based providers and "free" Wi-Fi capacity. For example, Google's Project Fi is an MVNO that relies only in part on capacity purchased from facilities-based mobile providers. Project Fi uses public and private Wi-Fi for mobile broadband services in addition to traditional capacity purchased from facilities-based providers. The Project Fi service is designed to dynamically and seamlessly transition between mobile broadband and Wi-Fi signals – with a preference for Wi-Fi where available, thus reducing reliance on traditional

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[54] *See* ptel, *US MVNO List*, https://www.ptel.com/mvno-list/ (listing 31 MVNOs); CTIA Super Mobility 2016, *Exhibitor List Index*, http://www.portal.ctiasupermobility.com/2016/Public/Exhibitors.aspx?&CatID=&SubCatID=137&CountryID=&HallID=&PavID=&SubExpoID=&keyword=&StateCodeID=&SubExpoCatIDs (listing 27 Exhibitors classified as MVNOs).

[55] *See, e.g.*, Dennis Jones, *MVNOs in the U.S.*, IPASS (Oct. 6, 2016), https://www.ipass.com/blog/mvnos-in-the-u-s/ ("Now, one in ten wireless subscribers, roughly 36 million, belongs to an MVNO."); Mike Dano, *MVNO US Mobile counts 20,000 customers, growth rate of 20-20%*, FierceWireless (Nov. 18, 2016), http://www.fiercewireless.com/wireless/mvno-us-mobile-counts-20-000-customers-growth-rate-20-30. Facilities-based providers cannot eliminate MVNO competition simply by refusing to sell to MVNOs (or selling to them at higher prices). The problem is that MVNOs can themselves choose among all of the national and regional providers to obtain the network capacity they need. An attempt by any one facilities-based provider to increase the prices charged to MVNOs would merely create new opportunities for the other facilities-based providers to sell those services to MVNOs.

[56] *See Nineteenth Report* ¶ 9 (TracFone had 26 million subscribers).

mobile broadband capacity.[57]

Comcast is also deploying a mobile wireless service that relies less on capacity purchased from traditional mobile wireless providers and more on Wi-Fi, including Comcast's own 16 million Wi-Fi hotspots.[58] The cable provider is leveraging its existing customer relationships to offer customers mobile wireless services that are bundled with its video, broadband and home telephone services. Comcast has argued that this service will provide "consumers with a better wireless experience, for less money, on today's most popular devices."[59] "[T]he initial $45 unlimited offer is the lowest among the top U.S. wireless carriers and is likely to further escalate a price war" in the industry.[60] In addition, Comcast's CEO has explained that Comcast "'believe[s] there will be a big payback with reduced churn, more stickiness and better satisfaction. . . .'"[61]

The structure of the wireless marketplace is also obviously conducive to new facilities-

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[57] *See* Jared Newman, *What everyone's getting wrong about Google's Project Fi: Saving money isn't the point*, PC World (April 24, 2015), http://www.pcworld.com/article/2914575/what-everyones-getting-wrong-about-googles-project-fi-saving-money-isnt-the-point.html ("But in many cases, users won't need the carrier networks at all, because Project Fi can route calls and text messages over Wi-Fi.").

[58] *See, e.g.*, Sarah Perez, *Comcast announces its new wireless business, Xfinity Mobile*, TechCrunch (April 6, 2017), https://techcrunch.com/2017/04/06/comcast-announces-its-new-wireless-business-xfinity-mobile/ ("The service will run over top Verizon's network, but will also include access to Comcast's existing 16 million Wi-Fi hotspots already offered to current customers.").

[59] Comcast, *Comcast Introduces Xfinity Mobile: Combining America's Largest, Most Reliable 4G LTE Network and the Largest Wi-Fi Network* (Apr. 6, 2017), http://cmcsa.com/releaseDetail.cfm?ReleaseID=1020449.

[60] Gerry Smith and Scott Moritz, *Comcast Jumps into Wireless with $45 Service Undercutting Rivals*, Bloomberg Markets (Apr. 6, 2017), https://www.bloomberg.com/news/articles/2017-04-06/comcast-enters-wireless-business-with-45-a-month-service.

[61] Colin Gibbs, *Comcast to launch wireless service in 2017 with Verizon MVNO, 15M Wi-Fi hotspots*, FierceWireless (Sep. 20, 2016), http://www.fiercewireless.com/wireless/comcast-to-launch-wireless-service-2017-verizon-mvno-15m-Wi-Fi-hotspots.

based entry and expansion by existing providers. Most notably, the Commission recently completed two spectrum auctions that made enormous amounts of new spectrum available for use by new and existing entrants, which will ultimately result in customers having even more options, producing even more intense competition in the wireless marketplace.

In 2015, the Commission completed Auction 97. More than 1,600 licenses were sold to more than 30 different bidders.[62] Some of these winning bidders are existing facilities-based providers; for example, T-Mobile purchased a substantial amount of AWS-3 spectrum in that auction and has already deployed portions of it to enhance service in its existing service areas and to expand its footprint.[63]

Other winning bidders will be new entrants. For example, one of the largest winning bidders in Auction 97 was DISH Network.[64] Even before that auction, DISH had amassed a large national spectrum portfolio, holding 40 MHz of AWS-4 spectrum and the 700 MHz E Block in most of the country. In Auction 97, DISH won more licenses than any other carrier, adding more than 700 AWS-3 licenses to its national portfolio.[65] The Commission's rules *require* DISH to deploy this spectrum: winning bidders of AWS-3 spectrum are required to

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[62] *See* FCC, *Auction 97 Fact Sheet*, http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=97 ("*Auction 97 Fact Sheet*").

[63] *See* Diana Goovaerts, *T-Mobile Brings AWS-3 Spectrum Online for LG V20 Launch*, WirelessWeek (Oct. 18, 2016), https://www.wirelessweek.com/news/2016/10/t-mobile-brings-aws-3-spectrum-online-lg-v20-launch; Mike Dano, *T-Mobile to start AWS-3 spectrum buildouts later this year, ahead of AT&T*, FierceWirelss (Aug. 8, 2016), http://www.fiercewireless.com/wireless/t-mobile-to-start-aws-3-spectrum-buildouts-later-year-ahead-at-t.

[64] *See* Phil Goldstein, *AWS-3 Auction Results: AT&T leasds with $18.2B, Verizon at $10.4B, DISH at $10B and T-Mobile at $1.8B*, FierceWireless (Jan. 30, 2015), http://www.fiercewireless.com/wireless/aws-3-auction-results-at-t-leads-18-2b-verizon-at-10-4b-dish-at-10b-and-t-mobile-at-1-8b.

[65] *See Id.*

"provide reliable signal coverage and offer service to at least 40 percent of the population in each of the license areas within 6 months after the license grant, and provide reliable signal coverage and offer service to at least 75 percent of the population in each of its license areas by the end of the initial twelve-year license term."[66]

Most recently, the Commission completed its historic "incentive auction," in which it repurposed 84 MHz of low-band broadcast spectrum for mobile wireless services (70 MHz for licensed use and another 14 for wireless microphones and unlicensed use).[67] Some fifty bidders won more than 2,700 600 MHz licenses in this auction. The largest winner was T-Mobile, which will use this spectrum to further expand its facilities-based service area and to further improve the quality of service in its existing footprint: "As for when you'll actually see the benefits of this 600 MHz auction, T-Mobile CTO Neville Ray says that T-Mo will start deploying this year in both new and existing markets."[68]

But perhaps two of the more surprising large winners in the incentive auction were DISH and Comcast. DISH added another 486 licenses to its arsenal, further confirming its intent to enter the marketplace. As one analyst explained: "DISH's decision to load up on low frequency

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[66] *Auction 97 Fact Sheet*.

[67] *See* FCC, *Broadcast Incentive Auction*, https://www.fcc.gov/about-fcc/fcc-initiatives/incentive-auctions.

[68] Alex Wagner, *FCC announces results of 600 MHz auction, T-Mobile wins more spectrum than any other company*, TmoNews (April 13, 2017), http://www.tmonews.com/2017/04/fcc-results-600mhz-auction-t-mobile-wins-most. *See also* T-Mobile, *T-Mobile's Spectrum Haul is a Game Changer for Wireless Consumers* (Apr. 13, 2017), https://newsroom.t-mobile.com/news-and-blogs/tmobile-spectrum-auction-win.htm (T-Mobile purchased "45% of all low-band spectrum sold," which will enable it "to expand its LTE network to compete in every corner of the country, strengthen existing LTE coverage and increase capacity to meet customers' growing demand for mobile data."); Jon Brodkin, *T-Mobile dominates spectrum auction, will boost LTE network across US*, Ars Technica (Apr. 13, 2017), https://arstechnica.com/information-technology/2017/04/t-mobile-dominates-spectrum-auction-will-boost-lte-network-across-us/ (predicting that "the new spectrum should also help T-Mobile in rural areas, where it lags behind AT&T and Verizon in network quality.").

(coverage) spectrum makes no sense if they are planning to sell the rest of their spectrum … but it makes all the sense in the world if they are planning to build a network."[69] And DISH has said that it wants to offset its "plateaued TV subscriber numbers with high-growth wireless services."[70] DISH may even be considering a joint venture with T-Mobile and Amazon to use its existing and newly acquired spectrum.[71] Similarly, Comcast purchased substantial amounts of spectrum, covering 145 million POPs, including in New York, Chicago, San Francisco, and Philadelphia, putting it in position to complement its current MVNO/Wi-Fi strategy with facilities-based service.[72]

The wireless marketplace continues to evolve rapidly, and other potential entrants are surveying the landscape. As just one example, Charter Communications has been "vocal about its eagerness to enter the wireless market."[73] In filings with the Commission, Charter has stated that it "sees wireless as a primary area for future communications growth" and "intends to leverage and expand its existing Wi-Fi service, work with MVNO partners, and, at the appropriate time, invest in its own licensed spectrum based wireless network."[74]

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[69] Colin Gibbs, *Mapping T-Mobile, Dish, Comcast and AT&T: Who got how much 600 MHz spectrum and where?*, FierceWireless (April 18, 2017), http://www.fiercewireless.com/wireless/mapping-t-mobile-dish-comcast-and-at-t-who-got-how-much-600-mhz-spectrum-and-where.

[70] Greg Avery, *Dish Network again bids billions in FCC Spectrum Auction*, Denver Business Journal (April 13, 2017), http://www.bizjournals.com/denver/news/2017/04/13/dish-network-again-bids-billions-in-fcc-spectrum.html.

[71] *See* Chris Nolter, *Why Dish Might Want to Serve Up a Wireless Deal With T-Mobile and Amazon*, TheStreet (May 1, 2017), https://www.thestreet.com/story/14110072/1/t-mobile-could-strike-wireless-deal-with-dish-amazon-consultant.html.

[72] *See* Wagner, *supra* note 68.

[73] Colin Gibbs, *Charter tells FCC it aims "to be a key part" of the wireless market*, FierceWireless (Nov. 2, 2016), www.fiercewireless.com/wireless/charter-tells-fcc-it-aims-to-be-a-key-part-wireless-market.

[74] Reply Comments of Charter Communications, Inc., *Use of Spectrum Bands Above 24 GHz for*

B. Direct Evidence – Market Performance, Provider Conduct, and Consumer Conduct – Confirms That The Wireless Marketplace Is Effectively Competitive.

The Commission has emphasized that the structural characteristics of marketplaces "are desirable not as ends in themselves, but rather as a means of bringing tangible benefits to consumers such as lower prices, higher quality and greater choice of services," and these "consumer outcomes are the ultimate test of effective competition."[75] Indeed, the economic literature addressing mobile wireless competition emphasizes that "direct evidence" of competition "is superior to indirect evidence" because "direct evidence, by definition, is based on actual marketplace experience, whereas indirect evidence is not."[76] Accordingly, although the market structure analysis is a useful starting point and confirms that the wireless marketplace is structured to promote rivalrous behavior, there is also overwhelming evidence that consumers are, in fact, benefiting from such rivalrous behavior.

1. Market Performance.

The wireless marketplace has for decades exhibited all of the hallmarks of a robustly competitive market: increasing output, decreasing prices, increasing quality, and more choice. As shown below these trends continue today. But first, perhaps the most vivid illustration that the wireless marketplace is robustly competitive is the resurgence of unlimited plans in the past year.

Mobile Radio Services, GN Docket No. 14-177, at 1 (filed Oct. 31, 2016). Charter has also recently announced a new wireless partnership with Comcast to expand operational cooperation that it believes will "provide more choice, innovative products and competitive prices for customers in each of their respective footprints." Mike Farrell, *Comcast, Charter Make Wireless Partnership Official*, Multichannel News (May 8, 2017), http://www.multichannel.com/users/mfarrell.

[75] *Thirteenth Report* ¶ 187.

[76] *Assessing Competition* at 327.

Although unlimited plans have long been available in some form, competition based on unlimited wireless plan offerings shifted into high gear in 2016. The four national providers launched what Bloomberg, the Washington Post, and others have called a "price war" with unlimited plans.[77] In January 2016, AT&T introduced an unlimited plan for customers who also subscribed to AT&T's DIRECTV service. The plan was available for $100 per month for the first line (the second and third lines were $40 per month, and the fourth line was free). Later in 2016, T-Mobile and Sprint responded by replacing many of their existing plans with new unlimited plans that undercut the price of AT&T's unlimited offering. T-Mobile's new plan provided unlimited data for $70 per month for the first line and Sprint's new plan offered unlimited data for $60 per month for the first line.[78]

Contrary to claims that AT&T and Verizon can afford to sit out this competition, both AT&T and Verizon responded. AT&T replaced its original $100 unlimited plan with two new unlimited plans priced at $55 and $90 (depending on the value added features included), and made those plans available to all customers (as opposed to only DIRECTV customers).[79] Verizon responded early this year with a new unlimited plan for $80 per month for the first

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[77] *See, e.g.,* Scott Moritz, *T-Mobile, Sprint Escalate Price War With New Unlimited Plans*, Bloomberg Technology (Aug. 18, 2016), https://www.bloomberg.com/news/articles/2016-08-18/t-mobile-unveils-unlimited-wireless-plan-escalating-price-war; Donna Fuscaldo, *Unlimited Data Offers Mean New Carrier Price War*, Investopedia (Feb. 17, 2017), http://www.investopedia.com/articles/investing/021717/unlimited-data-offers-mean-new-carrier-price-war.asp; Tomi Kilgore, *Wireless carrier stocks fall amid budding price war in unlimited data*, MarketWatch (Feb. 27, 2017), http://www.marketwatch.com/story/wireless-carrier-stocks-fall-amid-budding-price-war-in-unlimited-data-2017-02-27; *Verizon Customers Defect* ("The industry's bruising price war has been a boon to consumers.").

[78] *See* Colin Gibbs, *T-Mobile, Sprint pit new unlimited data plans against one another*, FierceWireless (Aug. 18, 2016), http://www.fiercewireless.com/wireless/t-mobile-and-sprint-lure-users-new-unlimited-data-plans.

[79] *See* Patrick Holland, *Unlimited data plans: Verizon, T-Mobile, AT&T and Sprint compared*, CNET (Mar. 9, 2017), https://www.cnet.com/news/how-does-verizon-unlimited-plan-stack-up-against-the-others.

line.[80]

The intense competition related to unlimited plans, however, was not limited to just price competition. Providers also added additional features and benefits to these new lower-priced unlimited plans as they competed to find the best balance of price and features for customers. The unlimited plans offered by T-Mobile and Sprint initially included limitations on, among other things, video quality and mobile hotspot usage, but those restrictions were greatly relaxed in response to the unlimited plans rolled out by AT&T and Verizon.[81] In addition, AT&T added to its $90 offering a subscription to HBO for no additional charge, 10 GB mobile hotspot usage, high definition video streaming, unlimited international text messaging, roaming in Mexico and Canada, and a $25 credit towards monthly DIRECTV subscriptions.[82]

The consumer benefits from this and other wireless competition have been dramatic. The Wall Street Journal reported late last month that "[t]he industry's bruising price war has been a boon to consumers" contributing to "March's surprising 0.3% drop in consumer-price index."[83] Overall, "[p]rices for wireless services fell 11.4% in March from a year earlier…"[84] Moreover, "[d]uring the first three months of this year, [Verizon] posted its first-ever quarterly net loss of wireless subscribers, showing the damage resurgent rivals . . . have inflicted on the nation's largest carrier."[85] Verizon is therefore "having to slash prices and offer more data to stem [this] unprecedented wave of customer losses, a maneuver that benefits customers but hurts its bottom

[80] *See* Mike Snider and Eli Blumenthal, *Verizon joins the unlimited party with $80 plan*, USA Today (Feb. 12, 2017), https://www.usatoday.com/story/tech/news/2017/02/12/verizon-joins-unlimited-wireless-data-party/97827926.

[81] *See* Holland, *supra* note 79.

[82] *See* AT&T, *Unlimited Data Plans*, https://www.att.com/plans/unlimited-data-plans.html.

[83] *Verizon Customers Defect.*

[84] *Id*.

[85] *Id*.

line."[86] These events simply could not occur in a marketplace that is not effectively competitive.

The recent price declines are merely the continuation of a longstanding trend of falling prices, as the more aggregate data show. The most recent report from UBS finds that service revenues fell by 1.6 percent in 2016, on top of a 2 percent decline in 2015.[87] Moreover, UBS finds that the average customer bill, measured by ARPU fell by an average of 5.1 between fourth quarter 2015 and fourth quarter 2016.[88] These recent figures continue a trend set forth in the most recent CTIA survey, which shows that the average customer's bill in 2015 was lower than at any time since CTIA began tracking such data in 1993.[89]

The data maintained by the Bureau of Labor Statistics further confirm that consumers today pay less than ever before for wireless services. In the *Nineteenth Report*, the Commission noted that the "Wireless Telephone Service CPI" *decreased* by 3.8 percent from 2014 to 2015, even though the nation's overall CPI *increased* by 0.1 percent over the same period.[90] For the most recent report for March 2017, the Wireless CPI decreased by 7.0 percent, "the largest 1-month decline in the history of the index."[91] And these price declines dramatically understate

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[86] *Id*.

[87] *See* UBS Wireless 411 Report at 4.

[88] *Id*. at 15, Fig. 29.

[89] *See* CTIA, *Wireless Industry Survey* at 9, http://ctia.org/docs/default-source/default-document-library/ctia_survey_ye_2015_graphics.pdf?sfvrsn=0 (ARPU at the end of 2015 was $44.65, as compared to $47.53 at the end of 2010). It is important to note that although ARPU data can be a useful metric, it is neither a measure of price nor quantity but is a function of both, and therefore must be examined in context. Where, as is the case in the wireless industry, a growing proportion of a provider's customers are purchasing more data services, ARPU may increase even if the per unit prices have all declined. Indeed, we should expect to see this phenomenon as smartphone penetration continues to increase and a greater proportion of wireless subscribers add and upgrade data plans and consume ever larger amounts of data.

[90] *See Nineteenth Report* ¶ 29.

[91] *See* Bureau of Labor Statistics, *CPI Detailed Report, Data for March 2017* at 2, https://www.bls.gov/cpi/cpi_dr.htm#2017.

the true additional value consumers are reaping from competition in the wireless marketplace. At these lower prices, customers are receiving faster broadband speeds, more included features (*e.g.*, music, movies, tethering, and international calls, data and texts included), and more coverage. Moreover, wireless network platforms and services are the hub to numerous edge services, including mobile handsets, machine-to-machine devices, consumer devices (*e.g.*, heartrate monitors and watches) and millions of applications.[92]

Indeed, output also continues to skyrocket. The average smartphone user in North America increased data usage by 40 percent in 2016.[93] Overall data usage in North America increased by 44 percent in 2016, according to Cisco's latest estimate, and North America continues to lead the world in terms of available mobile broadband speeds.[94] The latest data from the CTIA survey also confirms sharp growth in overall mobile connections, minutes of use, and SMS messaging. The number of mobile wireless connections grew from 357.1 million at the end of 2014 to 374 million at the end of 2015.[95] Minutes of use increased in 2015 to 2.881 trillion minutes, up from 2.455 trillion in 2014.[96] The number of MMS messages has grown to 218 billion messages, up from 152 billion the prior year.[97] Data usage has soared to 9.65 trillion MBs, over double the 4.061 trillion MBs in 2014.[98] To put these numbers in real-world

[92] In 2016, the two major app stores, Google Play and Apple App Store, offered 2.2 million and 2 million apps, respectively. *See Nineteenth Report* ¶ 124.

[93] *See* Ericsson Mobility Report at 12.

[94] *See* Cisco, *supra* note 24.

[95] *See Nineteenth Report* ¶ 13, Chart II.B.1. These figures are based on Numbering Resource Utilization Forecast ("NRUF") data. CTIA's figures show an even greater increase, from 355.4 million connections at the end of 2014 to 377.9 million connections at the end of 2015. *Id.*

[96] *See* CTIA, *Wireless Industry Survey* at 7, http://ctia.org/docs/default-source/default-document-library/ctia_survey_ye_2015_graphics.pdf?sfvrsn=0.

[97] *See Id.*

[98] *See Id.*

perspective, in 2017, the average adult will spend 2 hours and 25 minutes per day using mobile apps, a 10.3% increase over the year before.[99] In short, customers are getting better wireless services, using more wireless services, and paying less for those services than ever before.

2. Provider And Consumer Conduct.

Although the marketplace results speak for themselves and confirm that the marketplace is effectively competitive, examination of the actions of providers and consumers within the marketplace are also indicative of a vibrantly competitive wireless marketplace.

Provider Conduct. As discussed above, providers in the wireless marketplace engage in intense pricing competition, as exemplified by the sharp reductions in Wireless CPI.[100] This pricing competition confirms beyond any serious question that the wireless marketplace is competitive. In addition, many other aspects of provider conduct in the wireless industry can be explained only by the existence of robust competition.

To begin with, providers in a non-competitive marketplace have little incentive to spend large amounts of money upgrading service quality.[101] But year after year, wireless providers' capital expenditures – largely used to upgrade the speed, quality, and scope of their networks – have been well over $20 *billion* dollars, and in many years exceeded $30 billion.[102] As Chairman Pai has explained, these investments would have been even higher, but for the drag imposed by the regulatory policies of the Wheeler Administration, such as Title II regulation of

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[99] *See* eMarketer, *supra* note 23.

[100] *See, e.g.*, Aaron Pressman, *Competition Is Making Unlimited Mobile Data Plans Even Better*, Fortune (Feb. 17, 2017), http://fortune.com/2017/02/17/competition-making-unlimited-mobile-data-plans-better/.

[101] *See* Jonathan B. Baker, *Beyond Schumpter Vs. Arrow: How Antitrust Fosters Innovation*, 74 Antitrust L.J. 575, 579 (2007) ("[C]ompetition among rivals producing an existing product encourages those firms to find ways to lower costs, improve quality, or develop better products.") (emphasis omitted).

[102] *See* UBS 411 Wireless Report at 11.

mobile broadband services, which has been shown to have reduced wireless investment by billions of dollars.[103] These enormous investments reflect the intense competition among providers to offer the fastest, most feature-rich, and most reliable networks. Providers have spent billions of dollars to acquire spectrum needed to maintain bandwidth sufficient to meet customers' skyrocketing demand, and to expand and upgrade their networks. Moreover, Providers have also funded the upgrades and expansion of network facilities needed to make the most efficient use of that spectrum, including near-nationwide LTE coverage.[104] And providers are in the process of implementing further upgrades to support next-generation services. AT&T and other carriers are beginning to upgrade their networks to support 5G technology, which promises subscribers "10 to 100 times faster data and web connections."[105]

The intense competition occurring in the wireless marketplace is also reflected in public campaigns that seek to differentiate one carrier's offerings from rival offerings. AT&T, for example, points out that its network offers wireless, TV, and internet "with reliability that exceeds 99%" and that its LTE-Advanced network is "50% faster than 4G LTE."[106] Verizon

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[103] *See, e.g.*, Hal Singer, *Bad Bet By FCC Sparks Capital Flight From Broadband*, Forbes (March 2, 2017), https://www.forbes.com/sites/washingtonbytes/2017/03/02/capital-flight-from-broadband-in-the-title-ii-era/#5e9e82c435cf; Patrick Brogan, *Broadband Investment Ticked Down in 2015*, USTelecom (Dec. 14, 2016), https://www.ustelecom.org/sites/default/files/Broadband%20Investment%20Down%20in%202015.pdf; Michelle Di Ionno and Michael Mandel, *Investment Heroes 2016: Fighting Short-termism* at 6, (Oct. 2016), https://docs.google.com/viewerng/viewer?url=http://www.progressivepolicy.org/wp-content/uploads/2016/10/InvestHeroes_2016.pdf&hl=en_US.

[104] *See Nineteenth Report* ¶ 39, Chart III.A.2 (99.7% of U.S. population has access to at least one LTE provider).

[105] Dmitry Rashnitsov, *AT&T starts upgrading wireless networks to 5G*, UPI (Feb. 12, 2016), http://www.upi.com/Business_News/2016/02/12/ATT-starts-upgrading-wireless-networks-to-5G/5851455282496/.

[106] *See* AT&T, *Nation's Best Data Network*, https://www.att.com/offers/network.html.

advertises the size and reach of its network, claiming that "[w]ith more than 500 markets and counting, Verizon has the nation's largest 4G LTE network."[107] More money is spent on advertising in the wireless industry than in virtually any other industry. In television advertising alone in 2015, AT&T spent $488 million, Verizon spent $378 million, T-Mobile spent $323 million, Sprint spent $254 million, and TracFone spent $20 million on their core brands.[108] Wireless industry advertising spending remained high at the beginning of 2016, with wireless brands spending $420 million in the first month and a half of the year on television advertising alone.[109] And these figures exclude many types of advertising such as radio, display, and online, as well as advertising for some of the major carriers' brands including Cricket and MetroPCS.

Providers also implement campaigns designed to provide strong incentives for customers to switch from rival networks. For example, AT&T offers up to $650 in credits per line to encourage customers to switch to AT&T.[110] T-Mobile has specifically targeted Verizon customers by offering them a 14-day trial period and paying their costs of returning to Verizon if they are not satisfied with T-Mobile.[111] Sprint now claims it offers the same network quality as Verizon at half the price, and has offered a 30-day money-back guarantee to new customers in an

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[107] *See* Verizon, *46 LTE Speeds vs Your Home Network*, https://www.verizonwireless.com/archive/mobile-living/network-and-plans/4g-lte-speeds-compared-to-home-network/.

[108] *See* iSpot.tv, *Year In Review: 2015 Industry Report Wireless*, https://www.ispot.tv/free-reports/2015-industries-wireless.

[109] *See* Ben Munson, *Verizon ad spend leads wireless section in 2016, but T-Mobile dominates online response post-Super Bowl*, FierceWireless, http://www.fiercewireless.com/special-report/verizon-ad-spend-leads-wireless-sector-2016-but-t-mobile-dominates-online-response.

[110] *See* AT&T, *Get up to $650 in credits per line to help you switch to AT&T*, https://www.att.com/shop/wireless/switch-and-save-etf.html.

[111] *See* Chris Morran, *T-Mobile To Dangle "Risk-Free"14-Day Trial For Verizon Customers*, Consumerist (May 5, 2015), https://consumerist.com/2015/05/05/t-mobile-to-dangle-risk-free-14-day-trial-for-verizon-customers/.

efforts to lure them to switch from their current providers.[112] And to the extent a customer still uses a plan with an early termination fee ("ETF"), providers are offering to pay those ETFs if the customer switches to their networks.[113]

Providers also compete by offering customer flexibility in terms of how they can pay for services and what services they can buy. For example, there has been a shift away from mandatory two-year service contracts, with carriers instead offering a variety of device leasing arrangements and installment payment plans.[114] This shift has "lowered prices for consumers" and "provided them with more flexibility and choice in wireless devices and carriers."[115] Providers continue to offer "Bring Your Own Phone" plans, which do not require consumers to purchase phones from the carrier.[116] Providers have also developed offerings that enable families to more cost effectively add devices used by other family members. And providers now all offer plans that allow customers to add tablets, wearables, and other devices.

Consumer Conduct. Consumer behavior also continues to demonstrate that the wireless sector is competitive. Foremost, customers confirm that providers are offering ever increasing

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[112] Colin Gibbs, *Sprint re-introduces 30-day guarantee to lure users*, FierceWireless (Mar. 28, 2016), http://www.fiercewireless.com/wireless/sprint-re-introduces-30-day-guarantee-to-lure-users.

[113] *See, e.g.*, Verizon, *Switch to Verizon and Get Up to $650*, https://www.verizonwireless.com/promos/switch-and-save/?dtb=1&_requestid=423260 (offering up to $650 to customers who trade in their phones and switch to Verizon).

[114] *See* Comments of CTIA, *Wireless Telecommunications Bureau Seeks Comment on the State of Mobile Wireless Competition*, WT Docket No. 16-137, at 47 (filed May 31, 2016).

[115] *Id.*

[116] *See, e.g.*, AT&T, *Bring your own phone or tablet to AT&T*, https://www.att.com/shop/wireless/byop.html?WT.srch=1&source=ECPS0000000PSM00P&kid=kwd-296784138866&cid=216484382&gclid=CMTOqb_8rNMCFVWHswodEhMDig; Verizon, *Bring your own device*, https://www.verizonwireless.com/bring-your-own-device/; Sprint, *Bring your own phone*, https://www.sprint.com/landings/bring-your-own-phone; T-Mobile, *Bring your own phone and get nationwide LTE coverage with ZERO commitment*, https://www.t-mobile.com/bring-your-own-phone.html.

levels of service. For example, the 2016 American Customer Satisfaction Index ("ACSI") demonstrated a 1.4% improvement in customer satisfaction for wireless phone service in 2016.[117] The improvement was driven by gains by AT&T, T-Mobile, and Sprint in the survey.[118] Overall, customer satisfaction has stayed even or improved across all metrics from 2015 to 2016, including courtesy and helpfulness of staff, network coverage, call quality, website satisfaction, ease of understanding bills, speed of store/service center transactions, call quality, data upload/download speed and reliability, range of plans available, and call center satisfaction.[119] The improvement has been sweeping, as "[a]ll aspects of the wireless customer experience are better than they were in 2015."[120] Similarly, J.D. Power has found the customer experience improving on some metrics, such as data speed.[121]

Moreover, barriers to switching and switching costs are lower than ever. As the Commission has observed, the more easily a consumer can switch wireless providers, "the more competitive pressure is put on mobile wireless service providers to improve their service in order to retain their customers."[122] Today, consumers have more access than ever to the information they need to make informed comparisons of price, quality and other attributes of wireless

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[117] *See* American Customer Satisfaction Index, *ACSI Telecommunications Report 2016* at 8 (June 1, 2016), http://marketing.theacsi.org/acton/attachment/5132/f-0048/1/-/-/-/-/ACSI%20Telecommunications%20Report%202016.pdf ("ACSI Report").

[118] *Id.*

[119] *Id.* at 10.

[120] *Id.* at 9.

[121] *See* J.D. Power, *Wireless Network Data Speeds Improve but Not Incidence of Data Problems*, J.D. Power Funds (March 2, 2017), http://www.jdpower.com/press-releases/jd-power-2017-us-wireless-network-quality-performance-study.

[122] Fifteenth Report, *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket No. 10-133, ¶ 11 (rel. June 27, 2011) ("*Fifteenth Report*").

services offered by rival providers. There are myriad websites and other sources (including brick and mortar stores) that provide extensive analyses and comparisons of provider services,[123] and, as noted, providers themselves are spending significant sums each year on advertising to inform consumers about the relative benefits of their networks. Providers also allow consumers to test their networks with no long-term obligations.[124]

Equally important, the industry has moved away from long-term contracts, and to the extent there are switching costs, providers offer to *pay* those costs to entice consumers to switch.[125] Indeed, the most recent data from ACSI show that reduced "switching barriers for customers will put more pressure on wireless providers to deliver better customer service" and that "moving between carriers has never been easier."[126]

The Commission has previously explained that the way in which "consumers respond to

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[123] *See, e.g.*, Consumer Reports, *Cell Phone & Service Buying Guide* (Sept. 2016), http://www.consumerreports.org/cro/cell-phones-services/buying-guide; Wirefly, *Compare Cell Phone Plans – Find The Best Cell Phone Plan*, https://www.wirefly.com/content/phone-plans; WhistleOut, *Find & Compare Cell Phone Plans*, https://www.whistleout.com/CellPhones.

[124] *See, e.g.*, AT&T, *Service Agreement*, https://www.att.com/equipment/legal/service-agreement.jsp?q_termsKey=postpaidServiceAgreement&q_termsName=Service+Agreement; Anu Passary, *Sprint Wants You To Switch, Offers 30-Day Satisfaction Guarantee: Here Are The Details*, Tech Times (March 27, 2016), http://www.techtimes.com/articles/144507/20160327/sprint-wants-you-to-switch-offers-30-day-satisfaction-guarantee-here-are-the-details.htm**;** T-Mobile, *Lifetime Coverage Guarantee*, http://explore.t-mobile.com/coverage-guarantee ("Within 30 days, if you're not satisfied, call or visit one of our participating T-Mobile stores to return your device for a full refund of service and device related costs.").

[125] *See, e.g.*, T-Mobile, *There's Never Been A Better Time To Switch To T-Mobile*, https://www.t-mobile.com/offer/switch-carriers-no-early-termination-fee.html?irgwc=1&clickid=Wd2TNA0mVVQ1S9YS0CVIoQ2VUkhyIIRK3XseWA0&iradid=187834&ircid=3290&irpid=123412&cmpid=WTR_AF_Digital%20Trends.&sharedid (T-Mobile will provide up to $650); Verizon, *Switch to Verizon and get up to $650*, https://www.verizonwireless.com/promos/switch-and-save/?dtb=1&_requestid=423260; David Curry, *Sprint Extends 50 Perfect Mobile Promotion For T-Mobile, AT&T, And Verizon Customers*, Digital Trends (Jan. 7, 2016), http://www.digitaltrends.com/mobile/sprint-50-percent-deal-extension/ (Sprint will pay $650).

[126] ACSI Report at 9.

changes in the price and/or quality of mobile wireless service is one indicator of the level of competition in the industry."[127] As providers have continued to compete with new prices, plans features, coverage, and other attributes, consumers have indeed responded, as demonstrated by churn rates. During 2016, industry-wide churn rose to 1.61% in the fourth quarter, its highest level since the fourth quarter of 2014.[128] And churn rates have continued at these levels, and in some cases have risen, in the first quarter of 2017.[129]

[127] *Fifteenth Report* ¶ 11.

[128] *See* UBS Wireless 411 Report at 19, Fig. 35.

[129] For example, AT&T's churn rate increased from 1.42% in first quarter 2016 to 1.46% in the first quarter of 2017. *Id. cf.* AT&T, *Q1 2017 AT&T Earnings Investor Briefing* (April 25, 2017), https://www.att.com/Investor/Earnings/1q17/ib_final_1q17.pdf. Verizon's first quarter 2016 churn was .96% for retail postpaid and 1.23% for retail. *See* Verizon, *Condensed Consolidated Statements of Income*, http://www.verizon.com/about/file/14019/download?token=zwoUnTk1. That rose to 1.15% and 1.39% respectively in the most recent quarter. *See* Verizon, *Condensed Consolidated Statements of Income*, http://www.verizon.com/about/file/21857/download?token=9scaZd9y.

CONCLUSION

For the foregoing reasons, the Commission should find in the Twentieth Report that wireless markets are intensely competitive.

Respectfully Submitted,

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